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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,066

11/17/2003

Timothy O'Brien

022438.45514

6392

7590  
McTavish Patent Firm  
429 Birchwood Courts  
Birchwood, MN 55110

08/27/2007

EXAMINER

REDDIG, PETER J

ART UNIT

PAPER NUMBER

1642

MAIL DATE

DELIVERY MODE

08/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/715,066

Applicant(s)

O'BRIEN ET AL.

Examiner

Peter J. Reddig

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 2 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) 21, 22, 24 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 23, and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Applicant's election without traverse of SEQ ID NO: 4 as the species of CA125 molecule in the reply filed on 6/5/2007 in reply to the Office Action of 5/3/2007 is acknowledged.
2. Claims 1, 2, and 21-26 are pending.
3. Claims 21, 22, 24, and 26 are hereby withdrawn from further consideration by the examiner under 37 CFR 1.142(b) as being drawn to a non-elected invention.
4. Claims 1, 2, 23, and 25 as drawn to SEQ ID NO: 4 are currently under consideration.

#### ***Priority***

5. It is noted that the priority date of the instant application, 10/715,066, was set as November 15, 2002 based on the claim of priority to provisional application 60/427,045 which provided support for SEQ ID NO: 4. As the claims are being examined as drawn to SEQ ID NO: 4, the priority date remains November 15, 2002.

#### ***New Grounds of Rejection***

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 2, 23, and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are indefinite because it is unclear how a nucleic acid is "adapted to express in a cell". Are changes being made to the nucleic acid sequence itself, i.e. SEQ ID NO: 4 for adaptation? Is the insertion in the expression vector the adaptation? Is the nucleic acid sequence

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being chemically modified? In the absence of a teaching in the specification as to how a sequence is “adapted to express in a cell”, the metes and bounds of the claim cannot be determined.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1, 2, 23, and 25 are rejected under 35 USC 112, first paragraph, as the specification does not contain a written description of the claimed invention. The limitation of “adapted to express in a cell” in claim 1 and 23 has no clear support in the specification and the claims as originally filed. Applicants have pointed to support for amended claim 1 and 23 in originally filed claims 1, 4, 14, and 15, SEQ ID NOS: 4 and 5, and by paragraph [0046] of the specification. A review of the specification discloses support for with a cDNA sequence, one skilled in the art has an easily renewable source of purified CA125. Portions of this cDNA sequence can be expressed to make CA125 polypeptides and these polypeptides can be used to make monoclonal antibodies. These monoclonal antibodies can be made by one skilled in the art to portions of the protein which heretofore do not have any monoclonal antibodies, such as the amino terminal sequence (para 0046), SEQ ID NO: 4 and 5, an isolated nucleic acid molecule encoding CA125 (original claim 1), the isolated nucleic acid molecule of claim 2 (SEQ ID NO: 4), wherein said molecule is a fragment thereof (original claim 2), a polypeptide with the amino acid sequence selected from the group consisting of: (a) the amino acid sequence set forth in SEQ ID NO: 5; (b) an amino acid sequence having at least 50% sequence identity to said sequence; (c) a conservative variant of an one of (a) to (b); and (d) a fragment of any one of (a)

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to (c) (original claim 14), a purified antibody that selectively binds to an amino acid sequence of the CA125 protein: (a) wherein the amino acid sequence of the CA125 protein comprises the amino acid sequence set forth in SEQ ID NO: 5; (b) an amino acid sequence having at least 50% sequence identity to said sequence; (c) a conservative variant of any one of (a) to (b); and (d) a fragment of any one of (a) to (c) (original claim 15). The suggested support is not found persuasive because there is nothing in the specification to suggest a nucleic acid molecule encoding CA125 (SEQ ID NO: 5) or a fragment thereof that is "adapted to express in a cell". The subject matter claimed in claims 1, 2, 23, and 25 broadens the scope of the invention as originally disclosed in the specification.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 23, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Yin and Lloyd (J. Biol. Chem. July 20, 2001. 276: 27371-27375) as evidenced by Appendix 1, which is an alignment of nucleic acid residues 63765-66765 of SEQ ID NO: 4.

The claims are drawn to:

1. An isolated nucleic acid molecule (SEQ ID NO: 4) encoding CA125 (SEQ ID NO: 5) or a fragment thereof, wherein the isolated nucleic acid molecule is an expression vector and is adapted to express in a cell CA125 (SEQ ID NO: 5) or a fragment thereof.

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23. The isolated nucleic acid molecule of claim 1 wherein the isolated nucleic acid molecule encodes and is adapted to express in a cell a fragment of SEQ ID NO: 5 wherein the expressed fragment can be used to make monoclonal antibodies.

25. The isolated nucleic acid molecule of claim 23 wherein the expressed fragment can be used to make monoclonal antibodies that specifically recognize CA125 (SEQ ID NO: 5).

Given the indefinite nature of the claims, it is assumed for examination purposes that a DNA in an expression vector is "adapted to express in a cell".

Yin and Lloyd teach cloning a C-terminal fragment of CA125 by screening a  $\lambda$ ZAP cDNA expression library of cDNA from OVCAR3 cells with an antibody to CA125, see Abstract, Materials and Methods, p. 27,372, and the Figures. Given that the  $\lambda$ ZAP cDNA vectors express fragments of cDNA that are detected by a CA125, Lin and Lloyd teach an isolated expression vector with a fragment of SEQ ID NO: 4 encoding a fragment of CA125 that is adapted to express in a cell a fragment of SEQ ID NO: 5.

Given that the polynucleotide of the prior art reference encodes a polypeptide that is recognized by an antibody to CA125, it would be expected that the encoded fragment could be used to make monoclonal antibodies that specifically recognize CA125 (SEQ ID NO: 5). Although the reference does not specifically state that the isolated CA125 nucleotide fragment was used to make monoclonal antibodies that specifically recognize CA125, the claimed product appears to be the same as the prior art product, absent a showing of unobvious differences. The office does not have the facilities and resources to provide the factual evidence needed in order to establish that the product of the prior art does not possess the same material, structural and functional characteristics of the claimed product. In the absence of evidence to the contrary, the

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burden is on the applicant to prove that the claimed product is different from those taught by the prior art and to establish patentable differences. See *In re Best* 562F.2d 1252, 195 USPQ 430 (CCPA).

9. All other objections and rejections set forth in the Office Action of 1/18/2007 are withdrawn.

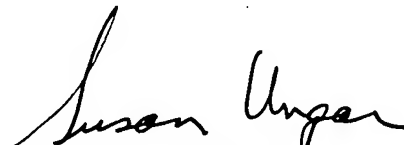
10. No claims allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J. Reddig whose telephone number is (571) 272-9031. The examiner can normally be reached on M-F 8:30 a.m.-5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shanon Foley can be reached on (571) 272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Peter J. Reddig  
Examiner  
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SUSAN UNGAR, PH.D  
PRIMARY EXAMINER

PJR

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## Appendix 1

AF361486  
 LOCUS AF361486 21112 bp mRNA linear PRI 08-SEP-2003  
 DEFINITION Homo sapiens mucin 16 (MUC16) mRNA, partial cds.  
 ACCESSION AF361486  
 VERSION AF361486.3 GI:34501466  
 KEYWORDS  
 SOURCE Homo sapiens (human)  
 ORGANISM Homo sapiens  
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini; Catarrhini; Hominidae; Homo.  
 REFERENCE 1 (bases 1 to 21112)  
 AUTHORS Yin, B.W. and Lloyd, K.O.  
 TITLE Molecular cloning of the ca125 ovarian cancer antigen. identification as a new mucin, muc16  
 JOURNAL J. Biol. Chem. 276 (29), 27371-27375 (2001)  
 PUBMED 11369781  
 REFERENCE 2 (bases 1 to 21112)  
 AUTHORS Lloyd, K.O. and Yin, B.W.T.  
 TITLE Direct Submission  
 JOURNAL Submitted (15-MAR-2001) Sloan-Kettering Institute for Cancer Research, 1275 York Ave., New York, NY 10021, USA  
 REFERENCE 3 (bases 1 to 21112)  
 AUTHORS Lloyd, K.O. and Yin, B.W.T.  
 TITLE Direct Submission  
 JOURNAL Submitted (26-AUG-2003) Sloan-Kettering Institute for Cancer Research, 1275 York Ave., New York, NY 10021, USA  
 REMARK Sequence update by submitter  
 REFERENCE 4 (bases 1 to 21112)  
 AUTHORS Lloyd, K.O. and Yin, B.W.T.  
 TITLE Direct Submission  
 JOURNAL Submitted (08-SEP-2003) Sloan-Kettering Institute for Cancer Research, 1275 York Ave., New York, NY 10021, USA  
 REMARK Sequence update by submitter  
 COMMENT On Sep 8, 2003 this sequence version replaced gi:34223840.  
 FEATURES  
 Location/Qualifiers  
 source 1..21112  
 /organism="Homo sapiens"  
 /mol\_type="mRNA"  
 /db\_xref="taxon:9606"  
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 /gene="MUC16"  
 CDS <1..20988  
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 /note="ovarian cancer antigen CA125"  
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 /db\_xref="GI:34501467"  
 /translation="PVTSLLTPLGLVITTDRLMGISREPGTSSTSNLSSTSHERLTTLED"



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SSRGTSMSGPDQFTISPDISTEAITRLSTSPIMTESAESAITIETGSPGATSEGLTLTL  
DTSTTTFWSGTHSTASPGFSHSEMTTLMSTRPGDVPWPSLPSVEEASSVSSSLSSPAM  
TSTSFFSTLPESISSSPHPVTALLTLGPVKTTDMLRTSSEPETSSPPNLSSTSAEILA  
TSEVTKDREKIHSSNTPVVNVGTVIYKHLSPSSVLADLVTTKPTSPMATTSTLGNTS  
VSTSTPAFPETMMTQPTSSLTSGLREISTSQETSSATERSASLSGMPTGATTKVSRTE  
ALSLGRTSTPGPAQSTISPEISTETITRISTPLTTTGAEMTITPKTGHSGASSQGT  
TLDTSSRASWPGTHSAATHRSPHSGMTTPMSRGPEDVSWPSRPSVEKTSPSSSLVLS  
AVTSPSPLYSTPSESSHSSPLRVTSLFTPVMMKTTDMLDTSLEPVTTSPPSMNITSDE  
SLATSKATMETEAIQLSENTAVTQMGTISARQEFYSSYPGLPEPSKVTSPPVTSSTIK  
DIVSTTIPASSEITRIEMESTSTLTPTPRETSTSQEIHSATKPSTVPYKALTSATIED  
SMTQVMSSSRGSPDQSTMSQDISTEVITRLSTSPIKTESTEMTITTQTGSPGATSRG  
TLTLDTSTTFMSGTHSTASQGFHSQMTALMSRTPGEVPWLSHPSVEEASSASFSLS  
PVMTSSSPVSSSTLPDSIHSSSLPVTSLLTSGLVKTTTELLGTSSEPETSSPPNLSSTSA  
EILATTEVTTDTEKLEMTNVVTSGYTHESPSSVLADSVTTKATSSMGITYPTGDTNVL  
TSTPAFSDTSRIQTKSKLSLTPGLMETSISEETSSATEKSTVLSSVPTGATTEVSRTE  
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TLDSSSTASWPGTHSATTQRFPRSVVTTMSRGPEDVSWPSPLSVEKNSPSSSLVSS  
SVTSPSPLYSTPSGSSHSSPPVPTSLFTSIMMKATDMLDASLEPETTSAPNMNITSDE  
SLAASKATTETEAIHV FENTAASHVETTSATEELYSSSPGFSEPTKVISPVTSSSIR  
DNMVSTTMPGSSGITRIEIESMSSLTPGLRETRTSQDITSSTETSTVLYKMPSGATPE  
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ATTEVSMTEIMSSNRTHIPDSQSTMSPDIITEVITRLSSSSMMSESTQMTITTQKSS  
PGATAQSTLTTLATTTAPLARTHSTVPPRFLHSEMTTLMRSRPENPSWKSSPFVEKTSS  
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TSLVTHSEAKMISAIPTLGVSPVQGLVTSLVTSSSGSETSAFSNLTVASSQPETIDSW  
VAHPGTEASSVPTLTVSTGEPFTNISLVTHPAESSSTLPRTTSRFHSSELDTMPSTV  
TSPEAESSAISTTISPGIPGVLTSLVTSSGRDISATFPTVPESPHESEATASWVTHP  
AVTSTTVPRTTPNYSHSEPDTTPSIATSPGAEATSDFTITVSPDVPDMVTSQVTSSG  
TDTSIPTLTLSSGEPETTTSFITYSEHTSSAIPTLPVSPDASKMLTSLVISSGTD

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STTTFP TLTETPYEPETTAIQLIHPAETNTMVPRTTPKFSSKSDTTLPVAITSPGPE  
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AIPTLT PSPGEPETTASSATHPGTQTGFTVPIRTVPSSEPDTMASWVTHPPQTSTPVS  
RTTSSFSHSSPDATPVMATSPRTEASSAVLTTISPGAPEMVTSQITSSGAATSTTVPT  
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TSSLFTLLVTGTSRVDLSPTASPGVSAKTAPLSTHPGTETSTMIPTSTLSLGLLETTG  
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GLAGLLGLITCLICGVLVTTTRRRKKEGEYNVQQQCPGYYSQSHLDLEDLQ"  
ORIGIN

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Query Match          99.8%;  Score 2994.6;  DB 5;  Length 21112;
Best Local Similarity 99.9%;  Pred. No. 0;
Matches 2997;  Conservative 0;  Mismatches 4;  Indels 0;  Gaps
0;

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QY          1 GGCAGCCACCAAAGTGGATGCCATCTGCACCTACCGCCCTGATCCCAAAAGCCCTGGACT 60
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Db          18090 GGCAGCCACCAAAGTGGATGCCATCTGCACCTACCGCCCTGATCCCAAAAGCCCTGGACT
18149

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Qy      61 GGACAGAGAGCAGCTATACTGGGAGCTGAGCCAGCTAACCCACAGCATCACTGAGCTGGG 120
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Db      18150 GGACAGAGAGCAGCTATACTGGGAGCTGAGCCAGCTAACCCACAGCATCACTGAGCTGGG
18209

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Qy            121 CCCCTACACCCTGGACAGGGACAGTCTCTATGTCAATGGTTTCACACAGCGGAGCTCTGT 180  
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18269

QY 181 GCCCACCCTAGCATTCCTGGGACCCCCACAGTGGACCTGGGAACATCTGGGACTCCAGT 240  
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 Db 18270 GCCCACCCTAGCATTCCTGGGACCCCCACAGTGGACCTGGGAACATCTGGGACTCCAGT  
 18329

QY 241 TTCTAAACCTGGTCCCTCGGCTGCCAGCCCTCTCCTGGTGCTATTCACTCTCAACTTCAC 300  
 Db 18330 TTCTAAACCTGGTCCCTCGGCTGCCAGCCCTCTCCTGGTGCTATTCACTCTCAACTTCAC

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18389

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Db 18390 CATCACCAACCTGCGGTATGAGGAGAACATGCAGCACCCCTGGCTCCAGGAAGTTCAACAC

18449

Qy 361 CACGGAGAGGGTCCTTCAGGGCCTGCTCAGGTCCCTGTTCAAGAGCACCAGTGTGGCCC 420

Db 18450 CACGGAGAGGGTCCTTCAGGGCCTGCTCAGGTCCCTGTTCAAGAGCACCAGTGTGGCCC

18509

Qy 421 TCTGTACTCTGGCTGCAGACTGACTTTGCTCAGGCCTGAAAAGGATGGGACAGCCACTGG 480

Db 18510 TCTGTACTCTGGCTGCAGACTGACTTTGCTCAGGCCTGAAAAGGATGGGACAGCCACTGG

18569

Qy 481 AGTGGATGCCATCTGCACCCACCACCCTGACCCCAAAGCCCTAGGCTGGACAGAGAGCA 540

Db 18570 AGTGGATGCCATCTGCACCCACCACCCTGACCCCAAAGCCCTAGGCTGGACAGAGAGCA

18629

Qy 541 GCTGTATTGGGAGCTGAGCCAGCTGACCCACAATATCACTGAGCTGGGCCACTATGCCCT 600

Db 18630 GCTGTATTGGGAGCTGAGCCAGCTGACCCACAATATCACTGAGCTGGGCCCTATGCCCT

18689

Qy 601 GGACAACGACAGCCTCTTTGTCAATGGTTTCACTCATCGGAGCTCTGTGTCCACCACCAG 660

Db 18690 GGACAACGACAGCCTCTTTGTCAATGGTTTCACTCATCGGAGCTCTGTGTCCACCACCAG

18749

Qy 661 CACTCCTGGGACCCCCACAGTGTATCTGGGAGCATCTAAGACTCCAGCCTCGATATTTGG 720

Db 18750 CACTCCTGGGACCCCCACAGTGTATCTGGGAGCATCTAAGACTCCAGCCTCGATATTTGG

18809

Qy 721 CCCTTCAGCTGCCAGCCATCTCCTGATACTATTACCCCTCAACTTCACCATCACTAACCT 780

Db 18810 CCCTTCAGCTGCCAGCCATCTCCTGATACTATTACCCCTCAACTTCACCATCACTAACCT

18869

Qy 781 GCGGTATGAGGAGAACATGTGGCCTGGCTCCAGGAAGTTCAAACTACAGAGAGGGTCCT 840

Db 18870 GCGGTATGAGGAGAACATGTGGCCTGGCTCCAGGAAGTTCAAACTACAGAGAGGGTCCT

18929

Qy 841 TCAGGGCCTGCTAAGGCCCTTGTTCAAGAACACCAGTGTGGCCCTCTGTACTCTGGCTC 900

Db 18930 TCAGGGCCTGCTAAGGCCCTTGTTCAAGAACACCAGTGTGGCCCTCTGTACTCTGGCTC

18989

Qy 901 CAGGCTGACCTTGCTCAGGCCAGAGAAAGATGGGGAAGCCACCGGAGTGGATGCCATCTG 960

Art Unit: 1642

Db 18990 CAGGCTGACCTTGCTCAGGCCAGAGAAAGATGGGGAAGCCACCGGAGTGGATGCCATCTG  
19049

Qy 961 CACCCACCGCCCTGACCCACAGGCCCTGGGCTGGACAGAGAGCAGCTGTATTTGGAGCT  
1020  
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Db 19050 CACCCACCGCCCTGACCCACAGGCCCTGGGCTGGACAGAGAGCAGCTGTATTTGGAGCT  
19109

Qy 1021 GAGCCAGCTGACCCACAGCATCACTGAGCTGGGCCCCCTACACACTGGACAGGGACAGTCT  
1080  
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Db 19110 GAGCCAGCTGACCCACAGCATCACTGAGCTGGGCCCCCTACACACTGGACAGGGACAGTCT  
19169

Qy 1081 CTATGTCAATGGTTTCACCCATCGGAGCTCTGTACCCACCACCAGCACCGGGGTGGTCAG  
1140  
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Db 19170 CTATGTCAATGGTTTCACCCATCGGAGCTCTGTACCCACCACCAGCACCGGGGTGGTCAG  
19229

Qy 1141 CGAGGAGCCATTACACTGAACTTCACCATCAACAACCTGCGCTACATGGCGGACATGGG  
1200  
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Db 19230 CGAGGAGCCATTACACTGAACTTCACCATCAACAACCTGCGCTACATGGCGGACATGGG  
19289

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1260  
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Db 19290 CCAACCCGGCTCCCTCAAGTTCAACATCACAGACAACGTCATGCAGCACCTGCTCAGTCC  
19349

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1320  
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Db 19350 TTTGTTCCAGAGGAGCAGCCTGGGTGCACGGTACACAGGCTGCAGGGTCATCGCACTAAG  
19409

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1380  
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19469

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1440  
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19529

Qy 1441 CATCACCCGGCTGGGCCCCCTACTCTCTGGACAAAGACAGCCTCTACCTTAACGGTTACAA  
1500  
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Art Unit: 1642

Db 19530 CATCACCCGGCTGGGCCCCTACTCTCTGGACAAAGACAGCCTCTACCTTAACGGTTACAA  
19589

Qy 1501 TGAACCTGGTCTAGATGAGCCTCCTACAACTCCCAAGCCAGCCACCACATTCTGCCTCC  
1560

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19649

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1620

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19709

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1680

Db 19710 CATCTCCAATCTCCAGTATTCACCAGATATGGGCAAGGGCTCAGCTACATTCAACTCCAC  
19769

Qy 1681 CGAGGGGGTCCTTCAGCACCTGCTCAGACCCTTGTTCCAGAAGAGCAGCATGGGCCCCCTT  
1740

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19829

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1800

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19889

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1860

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19949

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1920

Db 19950 TTACTGGGAGCTGAGTCAGCTGACCCATGGTGTACCCAACTGGGCTTCTATGTCCTGGA  
20009

Qy 1921 CAGGGATAGCCTCTTCATCAATGGCTATGCACCCAGAAATTTATCAATCCGGGGCGAGTA  
1980

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20069

Qy 1981 CCAGATAAATTTCCACATTGTCAACTGGAACCTCAGTAATCCAGACCCACATCCTCAGA  
2040



Art Unit: 1642

Db 20070 CCAGATAAATTTCCACATTGTCAACTGGAACCTCAGTAATCCAGACCCACATCCTCAGA  
20129

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2100

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20189

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2160

Db 20190 ACTACATGACACATTCCGCTTCTGCCTGGTCACCAACTTGACGATGGACTCCGTGTTGGT  
20249

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2220

Db 20250 CACTGTCAAGGCATTGTTCTCTCCAATTTGGACCCAGCCTGGTGGAGCAAGTCTTTCT  
20309

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2280

Db 20310 AGATAAGACCCTGAATGCCTCATTCCATTGGCTGGGCTCCACCTACCAGTTGGTGGACAT  
20369

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2340

Db 20370 CCATGTGACAGAAATGGAGTCATCAGTTTATCAACCAACAAGCAGCTCCAGCACCCAGCA  
20429

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2400

Db 20430 CTTCTACCTGAATTTACCATCACCAACCTACCATATTTCCAGGACAAAGCCCAGCCAGG  
20489

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20549

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2520

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20609

Qy 2521 CAACAGGCACCACACCGGGGTGGACTCCCTGTGTAACTTCTCGCCACTGGCTCGGAGAGT  
2580

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Art Unit: 1642

Db 20610 CAACAGGCACCACACCGGGGTGGACTCCCTGTGTAACCTTCTCGCCACTGGCTCGGAGAGT  
20669

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2640  
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20729

Qy 2641 GAACTTCACCCTGGACAGGAGCAGTGTCTTGTGGATGGGTATTCTCCCAACAGAAATGA  
2700  
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20789

Qy 2701 GCCCTTAACTGGGAATTCTGACCTTCCCTTCTGGGCTGTTCATCCTCATCGGCTTGGCAGG  
2760  
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20849

Qy 2761 ACTCCTGGGACTCATCACATGCCTGATCTGCGGTGTCTTGGTGACCACCCGCCGGCGGAA  
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20909

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20969

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21029

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Db 21090 A 21090